

LAP6 Rec'd PCT/PTO 07 JUL 2006

GAME FIGURE AND COLLECTOR'S ITEM

Description

The present invention relates to a game figure and collector's item, especially inspired by the game of soccer, comprising at least two extremities, at least one of which is mounted on the figure so as to be movable about a first axis of rotation and which can be accelerated by means of an acceleration mechanism.

Such game figures or collector's items are known for example from table soccer ("foosball"), whereby the cited game figure is used to kick a ball into the goal of the opposing team in compliance with specific rules. Said game figure comprises an extremity which is mounted to the figure so as to be movable about an axis of rotation and which can be accelerated in the forward direction by means of an acceleration mechanism. Said acceleration mechanism is in this case a push rod, which extends substantially perpendicular through the interior of the figure and projects outward at an area on the figure's head. Tapping this push rod deflects the extremity forward. If a ball or a similar object is positioned in front of this extremity and the game figure is aligned accordingly, tapping on the push rod will yield a more or less targeted "shot" of the ball. Since these types of figures are produced in different embodiments, including in the specific jerseys of known soccer teams, they serve not only as game figures, but also as collector's items.

The disadvantage to such game figures, however, is that since the rigid extremity is pivotably supported about only one axis of rotation, variations in ball acceleration are only possible with great difficulty because only the orientation of the figure as a whole can be changed relative the direction of motion of the ball to be accelerated. The possible changes of direction hereby extend mainly to horizontal changes. Making

differentiations for playing a ball shallow and playing a ball high is only possible with extreme difficulty. In addition, the cited acceleration mechanism is extremely unsuited to precise play since the direct dynamic handling necessitates moving the game figure itself and thus results in accelerations of the ball which are likely imprecise.

Since it is at times desirable for such game figures to also have natural body movements which are as realistic as possible, for example those of a soccer player, the rigid realization to the game figure's extremities also tends to be unsatisfactory. For example, such a game figure lacks the crucial features necessary to simulate the complexity of movement involved in kicking a goal.

The task addressing the present invention is to improve upon a game figure and collector's item as indicated above by allowing the figure to execute more precise, diverse and realistic movements.

This task is solved by a game figure and collector's item in accordance with claim 1.

In particular, this task is thus solved by a game figure and collector's item having at least two extremities, at least one of which is mounted on the figure so as to be movable about a first axis of rotation and which can be accelerated by means of an acceleration mechanism, whereby said at least one extremity is provided with at least two members which are interconnected so as to be movable about at least one second axis of rotation.

The advantage of a figure refined in this way is that it allows a much more complex and therefore also more realistic and precise orientation of the extremities to be moved. Among other things, this has an effect on the course of movement to the accelerated extremity. If, for example, the figure is to be based on a soccer player, the inventive configuration of the extremity to be accelerated, in this case the kicking leg of the soccer player, thus enables various different shots to be made by means of correspondingly adjusting the kicking leg. When the intent is to accelerate a ball

positioned in front of the game figure, the course of the ball can thus now be changed by changing the orientation of the extremity. Additionally, the inventive embodiment of the game figure's respective extremities allows its anatomy to better reflect that of the natural model, in the case of a soccer player, thus a human being.

In designing a game figure and collector's item, for example as a depiction of a person, same comprises four further extremities in addition to a head extremity. Two of these extremities are thereby preferably configured as leg extremities and the remaining two extremities as arm extremities. According to the invention, each arm and leg extremity is provided with a plurality of interconnected members, the whole of which creates a game figure and collector's item exhibiting a range of possible movements which are very similar to those of the human body. It is conceivable here, for example, to configure the possible movements of the individual members relative themselves and relative the figure itself in accordance with the anatomy of the human body. Of course, conceivable game figures and collector's items based on the present invention are not limited solely to a soccer player. The inventive embodiment to the extremities to be accelerated as well as the static extremities also allows the configuring of any other conceivable game figure and collector's item of realistic or imaginary nature.

If at least one extremity of the game figure and collector's item is configured to be mounted to the figure so as to be movable about a third axis of rotation, whereby the third axis of rotation runs perpendicular to the first axis of rotation and through an end section of said extremity, this yields an additional improvement in the range of possible movement for the game figure, decisively contributing to both extending the possible acceleration movements as well as to a more natural and more complex overall motility for the figure. In principle, the more complex the movements to the individual members of the respective extremities, the more natural and more realistic the overall motility to the figure. The more precise and diverse the alignment of the extremities to be accelerated, the more precisely the extremity can also strike an object, thereby accelerating it.

The movable connection of the members of the at least one extremity, as well as that of the extremity itself, with the figure is thereby preferably configured in such a manner that the alignment of the members relative one another and relative the figure can be adjusted by means of a force which is higher than a specific alignment force threshold. This means, for example, that the figure's operator can change the form of the soccer game figure's kicking leg, consisting of individual members as mentioned above, by accelerating the kicking leg with the acceleration mechanism mentioned at the outset without, however, the kicking leg itself being deformed. Dimensioning the alignment force threshold is to take into consideration both the force of acceleration which the acceleration of the extremity exerts upon the individual members and their connections as well as the force which arises upon impacting an object, for example the ball in play. Of course in the case of wholly static extremities, only the net weight of the figure as well as the static forces thereby resulting need to be considered. It is conceivable to realize the connection between the individual members, the extremities respectively, and the figure by means of connective elements which exhibit a retention force. This retention force ensures the respective alignment force threshold even after frequent rotational and pivotal movements being exerted on the individual members and extremities. Said alignment force threshold will, of course, differ based on member and extremity.

The connection of the individual members is preferably designed with at least one snap-lock mechanism. Apart from the free mobility which the connection allows (tilting, twisting, rotating, etc., depending on how the connection is configured), this enables certain member and extremity positions to be predefined. These engage preferably by means of the integrated snap-lock mechanism.

The acceleration mechanism preferably comprises a pretensioning means for applying the acceleration energy necessary to accelerate the extremity as an initial tension prior to aligning – aiming – the figure. The pretensioning means is thereby preferably configured such that the pretensioning is effected by the deflection of the at least one extremity about the first axis of rotation by an angle α while the releasing

of this initial tension effects an acceleration of the extremity in essentially the opposite direction.

In contrast to the direct acceleration of the extremity, for example by operating a push rod as mentioned at the outset, a potential kinetic energy is initially applied in the case of the inventive embodiment, the figure is then aligned and finally, should acceleration take place, the initial tension disengages and the stored kinetic energy is released.

Remaining with the example of a soccer player: his kicking leg is deflected rearward about the first axis of rotation by an angle α . This results in an initial tension which upon release causes an acceleration of the kicking leg in essentially the opposite direction; i.e., forward. If the forward-accelerated extremity strikes a ball or other such similar object, same will likewise be accelerated in accordance with the principle of linear momentum.

The pretensioning means thereby preferably comprises at least one arresting device which allows the fixing of the extremity at a specific angle of deflection α_R . A pretensioning can thus be applied and be released at any later point in time as an acceleration force. The arresting device thereby preferably comprises a plurality of locking stop steps which allow the fixing of different angles of deflection to the extremities. Therefore, a more or less large deflection and thus initial tension can be selected depending upon the desired force of acceleration. If the pretensioning means is thereby configured in such a manner for there to be a linear relationship between the extremity's angle of deflection α and the pretensioning force, it is possible for the user of the figure to essentially anticipate the resulting acceleration force on the basis of the angle of deflection. In other words: large angle of deflection – large acceleration force; small angle of deflection – small acceleration force.

To release the locking of the acceleration mechanism, the figure comprises a release mechanism, accessible in particular from the exterior of the figure. This release

mechanism is preferably a button or a lever which releases the arrested acceleration mechanism and thus induces a dissipating of the initial tension and an acceleration of the respective extremity.

The extremities of the figure are preferably configured to be movable in such a manner that the figure can be brought into a freestanding position. This ensures the inventive game figure and collector's item will have a realistic appearance. In addition, this freestanding position enables figures to be configured as known in reality, for example using the inventive game figure as a defensive wall when free kicks are made in a foosball game. Should the inventive game figure and collector's item be provided with a releasable retaining means for improving its stability, this also contributes increasingly to the advantage just described. Of course, the freestanding position of the figure and its supporting retaining means also provides for the figure to be commensurately positioned in its function as a collector's item.

The subclaims yield additional embodiments of the invention. The following will describe the invention utilizing the figures to specify an embodiment in greater detail.

Shown are:

- Fig. 1 a first embodiment of the invention,
- Fig. 2 a schematic representation of the embodiment from Fig. 1,
- Fig. 3 a frontal view of the Fig. 2 schematic representation of the first embodiment from Fig. 1 with axes of rotation plotted thereupon, and
- Fig. 4 a side view of the Fig. 2 schematic representation of the first embodiment from Fig. 1 with axes of rotation plotted thereupon.

The following description will use the same reference numerals for identical elements and those having equivalent effect.

Fig. 1 shows a first embodiment of the invention in a schematized, isometric and frontal representation. Depicted is a game figure and collector's item, modeled in the present case on a soccer player. The game figure and collector's item hereby has a main body 60 to which essentially five extremities 10 - 50 are movably attached. Two of these extremities are hereby configured as leg extremities 10, 20, two additional extremities as arm extremities 30, 40. A head 50 constitutes the fifth extremity. The individual extremities 10, 20, 30, 40 in this embodiment consist of individual members (see Fig. 2) which are movable relative one another around certain axes of rotation (see Figs. 2 - 4). To give this modeled body as natural of an appearance as possible and to cover up any conceivably existing connective members (see Fig. 2) between the individual members of extremities 10 - 50, the inventive game figure and collector's item 1 exhibits a number of coverings 72, 74, 76, 76'. In the present embodiment, these coverings 72, 74, 76, 76' are configured as components of an athletic jersey with coverings 72 and 74 forming an upper part and the pants of the jersey. Coverings 76 and 76' constitute the associated athletic socks. The advantage to these coverings 72, 74, 76, 76', made from fabric in the present case, apart from the modeling characteristics and the protective function afforded the connective elements (see Fig. 2), is that they can also be provided with appropriately placed advertising images. For example, they can be configured to correspond to the jerseys of famous soccer teams as an advertisement on behalf of the teams or also to increase the collector's value of the game figure and collector's item 1.

In order to improve the stability to game figure 1, this first embodiment is provided with a retaining means 80 which engages with the left extremity 20 of game figure 1. It is, of course, also conceivable to affix the retaining means to another extremity 10, 30, 40, 50 or to the main body 60. In order to increase the versatility of the inventive game figure 1, said retaining means 80 is affixed here to extremity 20 by means of locking catch projections (not shown) and can thus be easily and quickly detached from figure 1. In the present embodiment, game figure 1 is essentially based on the anatomy and the appearance of a human body. It is, of course, also possible to

replicate the anatomy of an animal or an imagined figure or also even modify the degree of detail accuracy.

Leg extremity 10 is configured as an acceleratable extremity 10. Among other functions, the task posed of this acceleratable extremity 10 is to accelerate ball 82 with a desired force and direction. Particularly in order to change the accelerated direction of ball 82, it is on the one hand possible to change the alignment of figure 1 to ball 82 but, on the other, the invention now makes it possible to adjust extremity 10 itself in such a manner so as to enable a directional control of the accelerated ball 82.

To this end, extremity 10 according to the invention exhibits three members 12, 14, 16 which are interconnected about a specific axis of rotation by means of connective elements 13 and 15. Extremity 10 as a whole is movably mounted to game figure 1 by means of a connective element 11. The movable connective elements 11, 13, 15 of said members 12, 14, 16 now allow the entire extremity 10 to be oriented such that different ball accelerations are made possible or also even different types of "shots" can be made. For example, the game figure 1 according to the invention allows ball 82 to be played both shallow as well as high, given the appropriate alignment of members 12, 14, 16 of extremity 10.

The connective elements 11, 13, 15 are hereby configured such that an adjusting of members 12, 14, 16 as well as extremity 10 relative main body 60 can only ensue given a force which is above a specific alignment force threshold. Said alignment force threshold essentially corresponds to the force necessary to accelerate ball 82 plus the static and dynamic acceleration forces acting on extremity 10, game figure 1 respectively. Another safety margin is usually provided here as well. Should one set the alignment force threshold too low, while that would have the effect of making the adjusting of individual members 12, 14, 16 and extremity 10 relative the main body 60 much easier, the individual members 12, 14, 16 would undergo a reorientation upon extremity 10 accelerating ball 82 and thus a loss of energy, since the potential acceleration energy from the pretensioning would not be converted

primarily into kinetic energy on ball 82 but rather deformation energy on extremity 10. Moreover, it is of course important for the connective elements 11, 13 and 15 to also guarantee the orientation of individual members 12, 14, 16 and extremity 10 over the long term. If only for this reason alone, connective elements 11, 13, 15 require a certain degree of resistance. To this end, it is advantageous to provide same with, for example, latches or other similar arresting mechanisms.

In this present embodiment, the game figure and collector's item 1 is configured with an acceleratable leg extremity 10. It is, of course, just as conceivable to configure the game figure 1 with an acceleratable leg extremity 20 instead of or additionally thereto and/or at least one acceleratable arm extremity 30, 40. In order to allow game figure 1 movements which are as versatile and flexible as possible, not only is acceleratable leg extremity 10 configured of members 12, 14, 16 which are interconnected by different connective elements 13, 15 and 16, but extremities 20, 30, 40, 50 are also configured in this manner. Thus, for example, arm extremity 30 exhibits members 32, 34 and 36 which are interconnected by means of connective elements 33 and 35. A connective element 31 then connects the entire arm extremity 30 to the main body 60 of game figure 1.

Apart from mobility which is very true to nature, this type of inventive configuration to the game figure and collector's item 1 also enables the freestanding position. Appropriately adjusting the individual members of the different extremities 10 - 50 will change their center of gravity to a virtually unlimited extent such that the game figure can essentially stand independently of the base.

The individual connective elements can hereby be configured in accordance with connective elements as known in the art. Therefore, depending upon the desired directions of movement for the individual members and extremities of game figure 1, same can be configured as ball joints, hinge joints, rotational joints or also combinations of same. It is, of course, also conceivable to use plastic or flexible materials instead of mechanically-configured joints.

The game figure 1 depicted in Figs. 1 and 2 is shown schematically in Figs. 3 and 4 in a frontal and in a side view. Feasible axes of rotation for extremity 10 and the individual members 12, 14, 16 are thereby shown as well as an angle of deflection α for acceleratable extremity 10. It is to be noted that the axes of rotation referred to in the following and in the claims refer to local axes of rotation. This means that the respective axes of rotation apply to the associated member or associated extremity. Thus, the axis of rotation 3, enabling the alignment of members 12 and 14 to their position in the given area, will of course change if, for example, the entire extremity 10 is pivoted about the axes of rotation 2 and 4. In the present embodiment, extremity 10 is configured to be pivotable about both the first axis of rotation 2 as well as the third axis of rotation 4. The individual members 12, 14 and 16 of extremity 10 are pivotable relative one another about the axes of rotation 3, respectively 5, and 6. It is, of course, also conceivable to configure the connective elements 11, 13 and 15 as shown in Fig. 2 so as to enable additional pivotable motions, for example perpendicular to axes 5 and 6. A similar configuration of the axes of rotation is of course also afforded the arm extremities 30 and 40 (see Fig. 2).

Apart from the axes of rotation 2, 3, 4, 5, 6 of extremity 10 for pivoting the individual members 12, 14, 16 relative themselves as well as extremity 10 itself, Fig. 4 shows an additional acceleration mechanism 64 having a pretensioning means (not shown) as well as a release mechanism 62. The pretensioning means of the acceleration mechanism 64 is operated by pivoting extremity 10 about the angle of deflection α . Angle α is defined here as the angle α by which extremity 10 is deflected from its initial rest position, that position at which there is no pretensioning effect, to reach the desired pretensioning force. The pretensioning means is preferably provided with a plurality of locking catches for this purpose which enable the fixing of the extremity given different angles of deflection α_i . The releasing of this locking by means of the release mechanism 62 essentially causes extremity 10 to swing back into the initial rest position, in consequence of which is acceleration of ball 82 (see Fig. 1). As already mentioned above, it is advantageous to have a linear relationship between

the pretensioning force and the angle of deflection α since the acceleration to extremity 10 can then be anticipated contingent upon the angle of deflection α .

Figs. 3 and 4 illustrate how different orientations of member 16 of extremity 10 about axis of rotation 5 will, for example, have a crucial influence on the direction of movement of ball 82 (see Fig. 1). For example, if member 16 is aligned in such a manner that it engages under ball 82 upon acceleration of extremity 10, the ball will be raised, a higher shot will result. Conversely, if member 16 is aligned such that it essentially strikes ball 82 at its center of gravity, ball 82 will only be accelerated horizontally.

The embodiment shown here directly illustrates how by making use of the pretensioning means according to the invention in combination with the precise orientability of the individual members of the various extremities 10 - 50, a very exact acceleration of the ball can be realized in any desired direction. It is noted that the embodiment of, for example, a tennis player would, of course, also be possible in the same manner— in this latter case, it would be extremity 40, among others, which would be accelerated.

It is hereby noted that claim is made on all individual as well as all combinations of the components essential to the invention described above, in particular the details as disclosed in the drawings. Variations of same will be apparent to those skilled in the art.